THE INSTITUTE FOR CERTIFIED REFERENCE MATERIALS
ICRM

CERTIFICATE OF ANALYSIS

CERTIFIED REFERENCE MATERIAL

No. F17/3

FERROMOLYBDENUM

CERTIFIED VALUES AND UNCERTAINTIES (95% confidence level), %

Molybdenum	61.2	± 0.1	Arsenic	0.021	± 0.001
Silicon	0.48	± 0.01	Zinc	0.0038	± 0.0004
Carbon	0.042	± 0.001	Lead	0.0051	± 0.0005
Sulphur	0.085	± 0.002	Tin	0.0029	± 0.0004
Phosphorus	0.042	± 0.001	Antimony	0.024	± 0.001
Copper	0.31	± 0.01	Bismuth	0.0009	± 0.0002
Tungsten	0.022	± 0.002			

ADDITIONAL DATA: Minimum weight of sample for analysis is 0.1 g.

Analytical methods used are given in Supplement.

Valeriy Stepanovskikh
Director, ICRM

The Institute for Certified Reference Materials
620057, Russia, Ekaterinburg, Ul'yanovskaya str., 13-a
Web: www.icrm-ekb.ru; e-mail: vstepanovskikh@gmail.com, v.stepanovskikh@icrm-ekb.ru

CERTIFIED REFERENCE MATERIAL
No. F17/3
FERROMOLYBDENUM
(continuation)

SUPPLEMENT

ANALYTICAL METHODS USED

MOLYBDENUM	Gravimetry lead-molybdate, as molybdenum oxide. Photometry, as thiocyanic complex, reduction by ascorbic acid. ICP-AES.
SILICON	Gravimetry, with sulfuric acid. ICP-AES.
CARBON	Coulometry. Infra-red absorption spectrometry.
SULPHUR	Infra-red absorption spectrometry. Coulometry. Titrimetry jodometry.
PHOSPHORUS	Photometry, as blue P-Mo complex, reduction by iron (II) –ions with hydroxylamine, or tiocarbamide, or ascorbic acid with potassium antimonyl tartrate. Extraction/photometry, as blue P-Mo complex, reduction by tin bichloride. ICP-AES.
COPPER	Photometry, with sodium diethylthiocarbamate, as ammoniac complex. ICP-AES. AAS. Extraction-photometry, with sodium diethylthiocarbamate.
TUNGSTEN	Photometry, as thiocyanic complex, reduce by titanium trichloride. Extraction/photometry, as thiocyanic complex with cetyltrimethylammonium, or cetylpirydinium. ICP-AES. ICP-MS.
ARSENIC	Photometry, as blue As-Mo complex, reduction by ascorbic acid, or hydrazine sulphate. AAS-ETA. ICP-AES. ICP-MS.
ZINC	Polarography. AAS. ICP-AES. ICP-MS.
LEAD	Polarography. AAS-ETA. ICP-AES. ICP-MS.
TIN	Photometry with para-nitro-phenylfluorone. Polarography. AAS-ETA. ICP-AES. ICP-MS.
ANTIMONY	Extraction/photometry, with brilliant green. AAS-ETA. ICP-AES. ICP-MS.
BISMUTH	Photometry, as iodic complex. AAS, with generation of hydrides. AAS. AAS-ETA. ICP-AES. ICP-MS.

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